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EUROPEAN PATENT APPLICATION

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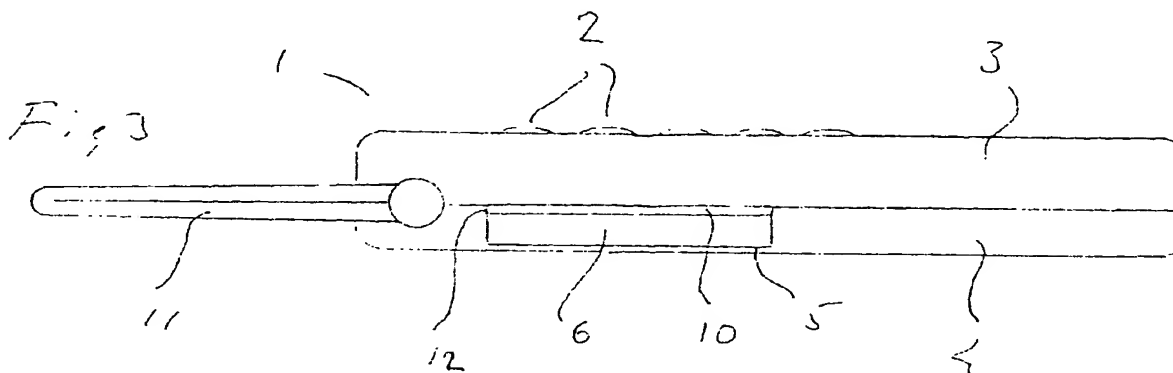
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(54) **Mobile telephone with cypher card**

(57) Mobile telephone (1), for instance a GSM telephone with a corresponding SIM card (8) for authentication within a GSM network. The telephone is additionally provided with a reception slot (12) for a smart card (10) containing ciphering keys that on temporary inser-

tion together with additional enciphering and deciphering circuits and programs in the telephone can make very secure end to end communication possible. In this way eavesdropping or accidental overhearing becomes practically impossible.



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a GSM900 mobile station,
 a DECT portable part
 a dual-mode GSM900/DECT terminal
 a dual-band GSM900/DCS1800 terminal
 a triple-band GSM900/DCS1800/PCS1900 terminal
 a TETRA mobile station
 a UMTS mobile station
 a dual-mode GSM900/UMTS terminal
 a dual-mode GSM900/Satellite terminal

[0016] In some of these cases the telephone will in addition to the ESC be equipped with two other cards for the networks' identification and authentication.

[0017] Further preferable developments of the invention are apparent from the claims and the following description of a preferred embodiment shown in the drawings. In the drawings fig 1 shows a mobile telephone according to the invention in a lateral view in a first position, fig 2 the same phone in a second position and fig 3 the phone in a third position.

[0018] The telephone 1 in the drawings is provided with keys 2 and a display (not visible) Between the top 3 and bottom 4 shell of the telephone housing an opening 5 is present for the insertion of a flat battery 6. When the battery is removed a small receptacle 7 for a SIM card 8 tilts up into the battery opening and the SIM card is accessible for removal or insertion through the slot or opening 5 as can be seen in fig 2. When the battery is once again inserted the receptacle tilts back out of the way.

[0019] Next to the battery slot 5 above and adjoining this is an opening slot 12 situated so that the total opening is about two millimeter wider than the battery thickness requires. Into this slot 12 an enciphering smart card (ESC) for end to end encryption can be inserted. This card has the size of a credit card. When this card is inserted its contact points are contacted by the contacts 9 shown next to the SIM-card receptacle 10. The ESC can not be inserted in its entirety into the phone but will when inserted to its working position still extend outside the housing by about one half, making it practically impossible to forget it there after use.

[0020] The ESC can be inserted before a communication is commenced or during communication.

[0021] The telephone is in its lower end provided with an antenna 11 that is mounted for a swing movement parallel to the length direction of the phone, from the position shown in fig 1 to the position in fig 2. The antenna is resiliently pretensioned towards the body of the phone snap locking it in its folded or rest position along the side of the phone covering the ESC slot, thus preventing the introduction of unintended objects as long as the antenna is in rest position. In this way the user will also find it impossible to fold the antenna if the ESC remains in the phone.

[0022] The resilient mounting of the antenna result not only in snap locking it but will also protect the mounting

from being accidentally damaged.

[0023] The antenna may be provided with snap-lock means enabling locking of a position obliquely backwards so that the telephone can stand up on a table.

[0024] In a slightly altered version the antenna may be slidably extendable downwards and at the same time serve as a lid over the ESC slot. Also a connection for an external antenna may be arranged together with other connections in a known manner.

[0025] The ESC may also include pin codes or other choices made by the user, for instance depending on whom he intends to contact. The ESC may also contain the telephone number of the receiver. The ESC may also be tightly bound to a specific telephone so that it can not be used unless one has access to the intended telephone.

Claims

1. Radiobased communication device or equipment for instance telephone **characterized in** being equipped with an enciphering circuit operating end to end and receiving the cipher keys from a cipher smart card that is insertable into an apposite slot in the telephone so as to enable enciphering or deciphering of speech and/or data to and from the telephone.
2. Device according to claim 1 in particular a mobile telephone **characterized in** that it is also equipped with a communication smart card for mutual identification and authentication between the device and the network service provider.
3. Device according to claim 1 or 2. **characterized in** the slot in the device for the accommodation of the cipher smart card being so located that the mouthpiece or keyboard lid can not be folded without the removal of the card.
4. Device according to any of the preceding claims, **characterized in** the enciphering circuit being contained in the cipher smart card.
5. Device according to any of the preceding claims, **characterized in** transmitting speech over any of the data channels of the GSM-system.
6. Device according to any of the preceding claims, **characterized in** being equipped with more than one slot or location for smart cards for instance so that two or more persons must insert their cards to enable ciphered communication.
7. Device according to any of the preceding claims, **characterized in** being a GSM900 mobile station or a DECT portable part.

Fig 1

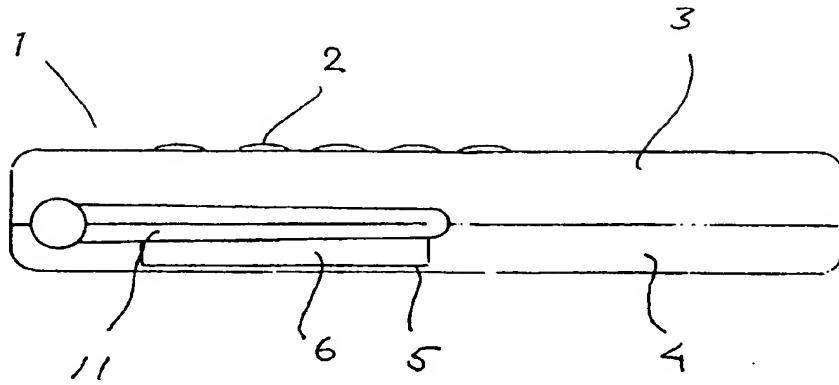


Fig 2

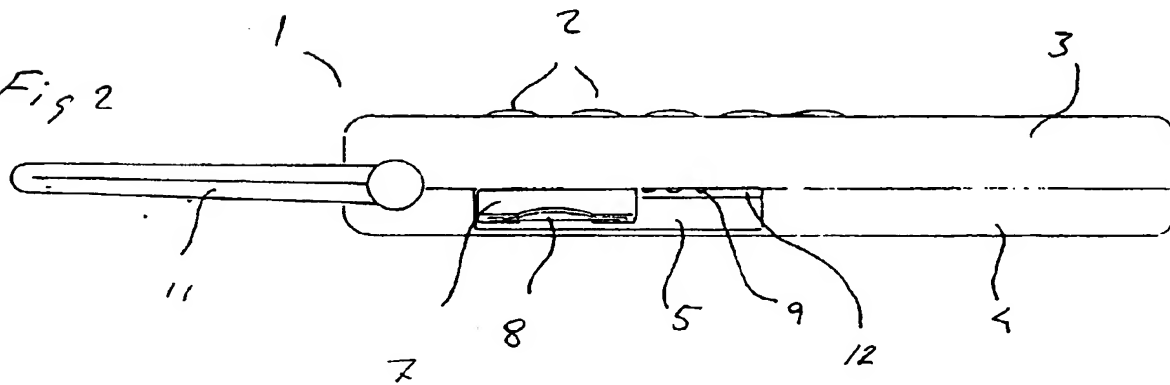
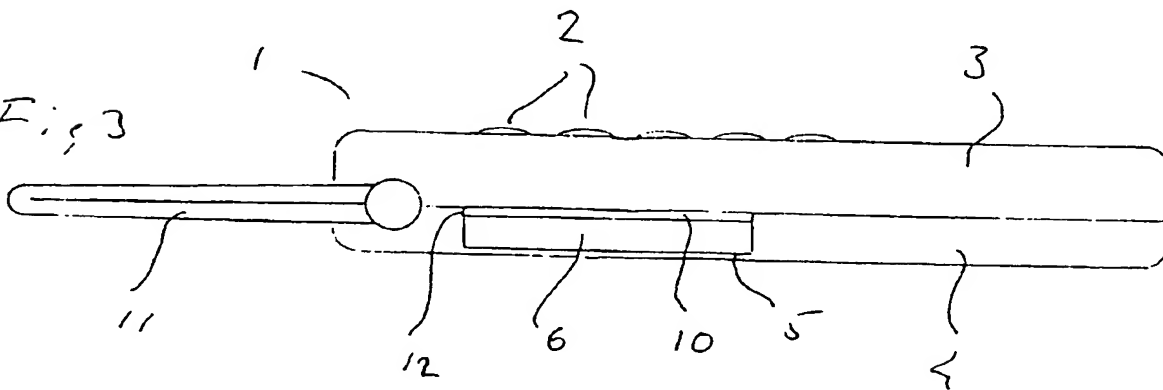


Fig 3





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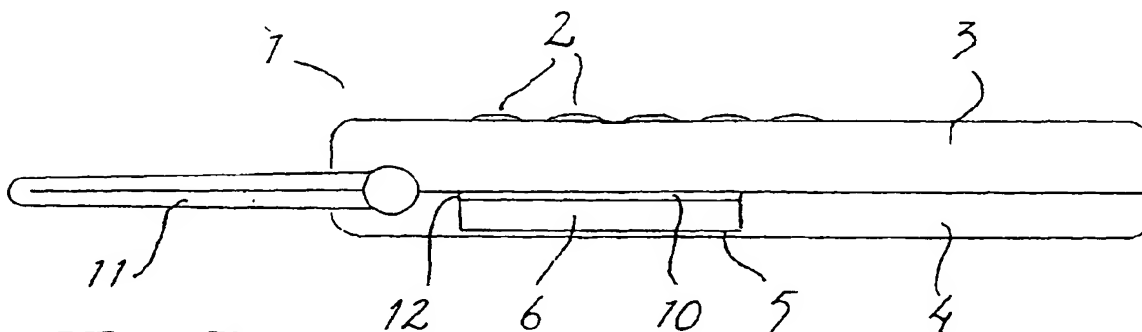


Fig. 3



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Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1, 2, 4, 5, 6, 7, 8, 9

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 85 0079

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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02-03-2000

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82